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Monthly Engineering Report No. 8

Improvement of Wide-Band FM Radar
Detection Techniques

Period Covered: 1 May 1961 to 31 May 1961

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Control Number
E4-481- 7

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NEXT REVIEW DATE:
AUTH: HR 70-2
DATE: 2301 REVIEWER: 010956

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General Comments

This report covers the eighth period of contract activity for improvement of FM radar detection techniques.

The job has been staffed technically by two Senior Engineers, five Engineers and one Technician. The period has been devoted to continuation of design and packaging efforts of the last period.

Activities of the Report Period

The focusing antenna has been received and is currently being tested for spot size and side lobe configuration. The antenna mount for area scanning is also being fabricated. On this structure the backward wave oscillator and TWT translator will be mounted.

The backward wave oscillator has been operated in the swept power supply. Linearity has been measured as better than 1%, the limit of the measuring technique used. The swept power supply is now being packaged.

The Huggins HA-49D TWT was ordered for use as the translator. The associated power supply has been designed and is being packaged as an integral portion of the high voltage supply for the backward wave oscillator. The one megacycle sawtooth circuit is being packaged adjacent to the TWT.

Design is under way on the intermediate frequency amplifier and the associated frequency conversion circuits. Tuning fork filters have been purchased for use in the gated analysis system and are expected to be installed during the next report period.

Program for the Ensuing Period

The major portion of the work remaining to be completed is that of the IF amplifier design and frequency conversion circuits for use prior to the analysis sub-system. In addition, packaging and testing of the other components will continue. It is anticipated that the next report period will conclude a major portion of the design activity for the current system.